


Amendments to the Claims

Please amend Claim 3. Please add new Claims 11-32. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

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1. (Previously presented). A method for processing network layer messages within a wireless communication system, the network layer including within it certain functional layers, including a radio resource function, a mobility management function, and a connection management function with at least the radio resource function being normally assumed to be a transport mechanism for the mobility management and connection management functions, the method comprising the steps of:
 - examining a network layer message to determine, prior to routing it to any functional layer, whether it is associated with connection management, mobility management, or radio resource management; and
 - routing the message directly to the respective connection management, mobility management, or radio resource management functional layer, without passing the message through each of the functional layers.
 2. (Original). A method as in claim 1 wherein the steps of examining and routing the message are performed within a network layer thread as the message is first received by the network layer.
 3. (Currently amended). A method as in claim 1 wherein the steps of examining and routing the message are performed within a lower ~~layer~~ layer thread as the message is passed up to the network layer by the lower layer.
 4. (Original). A method as in claim 1 wherein the step of examining only processes messages traveling in an uplink direction from a mobile station towards network subsystem components.

5. (Previously presented). A method as in claim 4 additionally comprising the step of:
for messages traveling in a downlink direction from network subsystem components towards the mobile station;
processing downlink network layer messages in a direct manner such that the network layer messages do not pass through other layer protocol stacks.
6. (Original). A method as in claim 5 additionally comprising the step of directly routing network layer messages that do not require acknowledgment.
7. (Original). A method as in claim 5 wherein downlink network layer messages that comprise connection management messages are first routed to the mobility management function.
8. (Original). A method as in claim 3 wherein network layer messages that comprise mobility management messages are first routed to the radio resource function.
9. (Original). A method as in claim 1 wherein the steps of examining a network layer message and routing the message directly to the respective functional layer are performed in a subsystem incorporating Base Transceiver System (BTS), Base Station Controller (BSC), and Mobile Switching Center Subsystems (MSC).
10. (Original). A method as in claim 1 wherein the steps of examining the network layer message and routing the message directly to the respective functional layer are performed in a mobile station (MS).
11. (New). A computer readable medium having computer readable program codes embodied therein for causing a computer to function as a network layer message multiplexer, the network layer including within it certain functional layers, including a radio resource function, a mobility management function, and a connection management

function with at least the radio resource function being normally assumed to be a transport mechanism for the mobility management and connection management functions, the computer readable medium program codes performing functions comprising:

examining a network layer message to determine, prior to routing it to any functional layer, whether it is associated with connection management, mobility management, or radio resource management; and

routing the message directly to the respective connection management, mobility management, or radio resource management functional layer, without passing the message through each of the functional layers.

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12. (New). A computer readable medium as in claim 11 wherein the functions of examining and routing the message are performed within a network layer thread as the message is first received by the network layer.
13. (New). A computer readable medium as in claim 11 wherein the functions of examining and routing the message are performed within a lower layer thread as the message is passed up to the network layer by the lower layer.
14. (New). A computer readable medium as in claim 11 wherein the function of examining only processes messages traveling in an uplink direction from a mobile station towards network subsystem components.
15. (New). A computer readable medium as in claim 14 additionally comprising the function of:
 - for messages traveling in a downlink direction from network subsystem components towards the mobile station;
 - processing downlink network layer messages in a direct manner such that the network layer messages do not pass through other layer protocol stacks.

16. (New). A computer readable medium as in claim 15 additionally comprising the function of directly routing network layer messages that do not require acknowledgment.
17. (New). A computer readable medium as in claim 15 wherein downlink network layer messages that comprise connection management messages are first routed to the mobility management function.
18. (New). A computer readable medium as in claim 13 wherein network layer messages that comprise mobility management messages are first routed to the radio resource function.
19. (New). A computer readable medium as in claim 11 wherein the functions of examining a network layer message and routing the message directly to the respective functional layer are performed in a subsystem incorporating Base Transceiver System (BTS), Base Station Controller (BSC), and Mobile Switching Center Subsystems (MSC).
20. (New). A computer readable medium as in claim 11 wherein the functions of examining the network layer message and routing the message directly to the respective functional layer are performed in a mobile station (MS).
21. (New). A network layer messaging multiplexer apparatus that processes network layer messages within a wireless communication system, the network layer including within it certain functional layers, including a radio resource function, a mobility management function, and a connection management function with at least the radio resource function being normally assumed to be a transport mechanism for the mobility management and connection management functions with a data link layer, the apparatus comprising:
- a first interface that enables the routing of network layer messages to said radio resource functional layer;
 - a second interface that enables the routing of network layer messages to said mobility management functional layer;

a third interface that enables the routing of network layer messages to said connection management functional layer;

a fourth interface that enables the routing of network layer messages from said data link layer; and

a multiplexer function that examines a network message to determine, prior to routing it to any functional layer, whether it is associated with connection management, mobility management, or radio resource management and routes the message directly to the respective connection management, mobility management, or radio resource management functional layer, without passing the message through each of the functional layers.

22.

(New). A network layer messaging multiplexer apparatus that processes network layer messages within a wireless communication system, the network layer including within it certain functional layers, including a radio resource function, a mobility management function, and a connection management function with at least the radio resource function being normally assumed to be a transport mechanism for the mobility management and connection management functions with a data link layer, the apparatus comprising:

a means for examining a network layer message to determine, prior to routing it to any functional layer, whether it is associated with connection management, mobility management, or radio resource management; and

a means for routing the message directly to the respective connection management, mobility management, or radio resource management functional layer, without passing the message through each of the functional layers.

23.

(New). A wireless communications system with messaging and other functionalities defined by a layered protocol, the system comprising:

a physical layer;

a data link layer that packages data from the physical layer for routing;

a network layer that routes a message containing the packaged data from the data link layer to a recipient, the network layer including within it certain functional layers,

including a radio resource function, a mobility management function, and a connection management function with at least the radio resource function being normally assumed to be a transport mechanism for the mobility management and connection management functions;

a means for examining a network layer message to determine, prior to routing it to any functional layer, whether it is associated with connection management, mobility management, or radio resource management; and

a means for routing the message directly to the respective connection management, mobility management, or radio resource management functional layer, without passing the message through each of the functional layers.

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24. (New). A system as in claim 23 wherein the means for examining and routing the message are performed within a network layer thread as the message is first received by the network layer.
25. (New). A system as in claim 23 wherein the means for examining and routing the message are performed within a lower layer thread as the message is passed up to the network layer by the lower layer.
26. (New). A system as in claim 23 wherein the means for examining only processes messages traveling in an uplink direction from a mobile station towards network subsystem components.
27. (New). A system as in claim 26 additionally comprising:
for messages traveling in a downlink direction from network subsystem components towards the mobile station;
a means for processing downlink network layer messages in a direct manner such that the network layer messages do not pass through other layer protocol stacks.

28. (New). A system as in claim 27 additionally comprising the means for directly routing network layer messages that do not require acknowledgment.
29. (New). A system as in claim 27 wherein downlink network layer messages that comprise connection management messages are first routed to the mobility management function.
30. (New). A system as in claim 25 wherein network layer messages that comprise mobility management messages are first routed to the radio resource function.
31. (New). A system as in claim 23 wherein the means for examining a network layer message and routing the message directly to the respective functional layer are performed in a subsystem incorporating Base Transceiver System (BTS), Base Station Controller (BSC), and Mobile Switching Center Subsystems (MSC).
32. (New). A system as in claim 23 wherein the means for examining the network layer message and routing the message directly to the respective functional layer are performed in a mobile station (MS).
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